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Reviewer: Durreshwar Anjum

Timestamp: Wed Oct 17 11:30:42 EDT 2007

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Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: Fri Oct 12 13:51:26 EDT 2007

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Application No: 10561235 Version No: 2.0

Input Set:

Output Set:

Started: 2007-10-01 17:39:32.594
Finished: 2007-10-01 17:39:32.948
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Total Warnings: 0
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No. of SeqIDs Defined: 7
Actual SeqID Count: 7

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<120> Immunogenic Compositions Comprising Multiple Gonococcal Antigens

<130> P034643WO

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<150> PCT/IB2004/002421

<151> 2004-06-25

<150> 0315021.6

<151> 2003-06-26

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Ala Leu Ser Gly Cys Val Ala Asp Pro Val Thr Gly Gln Gln Ser Pro
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Asn Lys Ser Ala Met Tyr Gly Leu Gly Gly Ala Ala Val Cys Gly Ile
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Val Gly Ala Leu Thr His Ser Gly Lys Gly Ala Arg Asn Ser Ala Leu
50 55 60

Ala Cys Gly Ala Ile Gly Ala Gly Val Gly Gly Tyr Met Asp Tyr Gln
65 70 75 80

Glu Gln Arg Leu Arg Gln Asn Leu Ala Gly Thr Gln Ile Glu Ile Gln
85 90 95

Arg Gln Gly Asn Gln Ile Arg Leu Val Met Pro Glu Ser Val Thr Phe
100 105 110

Ala Thr Gly Ser Ala Ala Leu Gly Gly Ser Ala Gln Tyr Ala Leu Asn
115 120 125

Thr Ala Ala Gln Thr Leu Val Gln Tyr Pro Asp Thr Thr Leu Thr Ile
130 135 140

Asn Gly His Thr Asp Asn Thr Gly Ser Asp Ala Val Asn Asn Pro Leu
145 150 155 160

Ser Gln His Arg Ala Gln Ala Val Ala Tyr Tyr Leu Gln Thr Arg Gly
165 170 175

Val Ala Ala Ser Arg Leu Thr Val Tyr Gly Tyr Gly Ser His Met Pro
180 185 190

Val Ala Ser Asn Ala Thr Val Glu Gly Arg Ala Gln Asn Arg Arg Val
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Glu Ile Leu Ile Asn Pro Asp Gln Arg Ala Val Asn Ala Ala Arg His
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Met
225

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<213> Neisseria gonorrhoeae

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1 5 10 15

Ser Phe Thr Met Ile Arg Leu Thr Arg Ala Phe Ala Ala Ala Leu Ile
20 25 30

Gly Leu Cys Cys Thr Thr Gly Ala His Ala Asp Thr Phe Gln Lys Ile
35 40 45

Gly Phe Ile Asn Thr Glu Arg Ile Tyr Leu Glu Ser Lys Gln Ala Arg
50 55 60

Asn Ile Gln Lys Thr Leu Asp Gly Glu Phe Ser Ala Arg Gln Asp Glu
65 70 75 80

Leu Gln Lys Leu Gln Arg Glu Gly Leu Asp Leu Glu Arg Gln Leu Ala
85 90 95

Gly Gly Lys Leu Lys Asp Ala Lys Lys Ala Gln Ala Glu Glu Lys Trp
100 105 110

Arg Gly Leu Val Glu Ala Phe Arg Lys Lys Gln Ala Gln Phe Glu Glu
115 120 125

Asp Tyr Asn Leu Arg Arg Asn Glu Glu Phe Ala Ser Leu Gln Gln Asn
130 135 140

Ala Asn Arg Val Ile Val Lys Ile Ala Lys Gln Glu Gly Tyr Asp Val
145 150 155 160

Ile Leu Gln Asp Val Ile Tyr Val Asn Thr Gln Tyr Asp Val Thr Asp
165 170 175

Ser Val Ile Lys Glu Met Asn Ala Arg
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<213> Neisseria gonorrhoeae

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Ala Leu Ser Ala Cys Gly Lys Lys Glu Ala Ala Pro Ala Ser Ala Ser
20 25 30

Glu Pro Ala Ala Ala Ser Ala Ala Gln Gly Asp Thr Ser Ser Ile Gly
35 40 45

Ser Thr Met Gln Gln Ala Ser Tyr Ala Met Gly Val Asp Ile Gly Arg
50 55 60

Ser Leu Lys Gln Met Lys Glu Gln Gly Ala Glu Ile Asp Leu Lys Val
65 70 75 80

Phe Thr Asp Ala Met Gln Ala Val Tyr Asp Gly Lys Glu Ile Lys Met
85 90 95

Thr Glu Glu Gln Ala Gln Glu Val Met Met Lys Phe Leu Gln Glu Gln
100 105 110

Gln Ala Lys Ala Val Glu Lys His Lys Ala Asp Ala Lys Ala Asn Lys
115 120 125

Glu Lys Gly Glu Ala Phe Leu Lys Glu Asn Ala Ala Lys Asp Gly Val
130 135 140

Lys Thr Thr Ala Ser Gly Leu Gln Tyr Lys Ile Thr Lys Gln Gly Glu
145 150 155 160

Gly Lys Gln Pro Thr Lys Asp Asp Ile Val Thr Val Glu Tyr Glu Gly
165 170 175

Arg Leu Ile Asp Gly Thr Val Phe Asp Ser Ser Lys Ala Asn Gly Gly
180 185 190

Pro Ala Thr Phe Pro Leu Ser Gln Val Ile Pro Gly Trp Thr Glu Gly
195 200 205

Val Arg Leu Leu Lys Glu Gly Gly Glu Ala Thr Phe Tyr Ile Pro Ser
210 215 220

Asn Leu Ala Tyr Arg Glu Gln Gly Ala Gly Glu Lys Ile Gly Pro Asn
225 230 235 240

Ala Thr Leu Val Phe Asp Val Lys Leu Val Lys Ile Gly Ala Pro Glu
245 250 255

Asn Ala Pro Ala Lys Gln Pro Asp Gln Val Asp Ile Lys Lys Val Asn
260 265 270

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<211> 288
<212> PRT
<213> Neisseria gonorrhoeae

<400> 5
Met Ile Leu Ala Ser Leu Val Arg Tyr Tyr Arg Arg Leu Ala Thr Glu
1 5 10 15

Thr Asp Glu Thr Gly Asn Pro Lys Val Pro Ser Tyr Gly Phe Ser Glu
20 25 30

Glu Lys Ile Gly Trp Ile Leu Val Leu Asp Lys Glu Gly Arg Leu Lys
35 40 45

Thr Val Val Pro Asn Leu Thr Ala Asp Lys Lys Pro Gln Pro Lys Leu
50 55 60

Met Ser Val Pro Arg Pro Glu Lys Arg Thr Ser Gly Ile Lys Pro Asn
65 70 75 80

Phe Leu Trp Asp Lys Thr Ala Tyr Ala Leu Gly Val Glu Ala Asn Lys
85 90 95

Asn Lys Ala Glu Ala Lys Glu Lys Pro Phe Thr Pro Ser Glu Lys Thr
100 105 110

Phe Glu Ala Phe Lys Gln Tyr His Leu Asp Leu Leu Gln Asn Ser Glu
115 120 125

Asp Glu Gly Leu Gln Ala Leu Cys Arg Phe Leu Gln Asn Trp Gln Pro
130 135 140

Ala His Phe Ala Ala Glu Asn Leu Pro Ala Glu Met Leu Asp Ser Asn
145 150 155 160

Thr Ala Phe Ser Leu Glu Lys Pro Thr Ala Leu Ile His Lys Arg Glu
165 170 175

Ala Ala Gln Thr Leu Trp Ala Gly Cys Leu Lys Ser Asp Glu Ala Leu
180 185 190

Glu Ser Leu Cys Leu Ile Ser Gly Asp Thr Ala Pro Ile Ala Arg Leu
195 200 205

His Pro Ala Ile Lys Gly Val Phe Gly Gly Gln Ser Ser Gly Gly Ser

210	215	220
Ile Ile Ser Phe Asn Lys Glu Ala Phe Ser Ser Phe Gly Lys Glu Gln		
225	230	235
Gly Ala Asn Ala Pro Val Ser Glu Gln Ser Ala Phe Ala Tyr Thr Thr		
245	250	255
Ala Leu Asn Tyr Leu Leu Arg Arg Glu Asn Asn His Cys Leu Thr Ile		
260	265	270
Gly Asp Ala Ser Thr Val Phe Trp Ala Glu Ala Asp Asp Ile Val Asp		
275	280	285

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<212> PRT
<213> Neisseria gonorrhoeae

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15		
Leu Ile Val Arg Ser His Tyr Arg Trp Thr Tyr Phe Phe Ala Ser Ala		
20	25	30
Leu Phe Val Phe Leu Ala Gly Gly Met Leu Met Leu Thr Ala Gln Trp		
35	40	45
Gln Arg Ala Leu Asn Phe Ala Ser Val Trp Phe Val Val Leu Ile Leu		
50	55	60
Phe His Arg Leu Lys Ile His Tyr Tyr Lys Gln Pro Leu Leu Ile Ser		
65	70	75
80		
Asp Phe Leu Leu Ile Ala Asp Trp Arg Asn Trp Glu Thr Leu Phe His		
85	90	95
Tyr Lys Glu Ala Val Ile Gly Met Ala Gly Leu Leu Ala Leu Ala Gly		
100	105	110
Tyr Ala Val Phe Gly Trp Ser Gly Ala Asp Ser Leu Gly Met Pro Trp		
115	120	125
Arg Trp Ala Gly Ala Val Leu Phe Ala Ala Ala Phe Val Ser Val Arg		
130	135	140
His Phe Ser Lys His Pro Gly Ala Val Lys Thr Trp Leu Asp Ser Leu		
145	150	155
160		
Pro Asp Asp Gly Arg Asp Val Phe Leu Asn Leu Pro Met Ser Cys Arg		
165	170	175
Ala Val Phe Phe Gln Val Pro Val Phe Glu Gly Asp Gly Glu Ala Phe		
180	185	190

Ala Arg Gln Met Pro Ser Glu Thr Arg Pro Tyr Gly Met Ser Asp Glu
195 200 205

Lys Pro Asp Ile Val Val Thr Leu Met Glu Ser Thr Leu Asp Pro His
210 215 220

Cys Phe Asp Phe Ala Ala Ala Lys Ile Pro Asp Leu Lys Met Phe Gly
225 230 235 240

Arg Gln Glu Asp Thr Val Phe Ser Ser Pro Leu Arg Val His Thr Phe
245 250 255

Gly Gly Ala Thr Trp Lys Ser Glu Phe Ala Phe Leu Ala Gly Val Pro
260 265 270

Ser Thr Asp Phe Gly Ala Leu Ala Ser Gly Val Phe Tyr Ser Val Val
275 280 285

Pro His Leu Gln Thr Gly Phe Val Arg Asn Leu Arg Glu His Gly Tyr
290 295 300

Phe Cys Val Ala Leu Ser Pro Phe Thr Lys Gly Asn Tyr Asn Ala Lys
305 310 315 320

Ala Ala Tyr Asp His Phe Gly Phe Asn Leu Met Phe Gln Pro Gln Asp
325 330 335

Leu Gly Tyr Pro Ala Pro Met Gly Lys Asn Leu Trp His Ile Ser Ser
340 345 350

Glu Glu Met Met Gln Tyr Ala Arg Met Ile Leu Glu Lys Arg His Pro
355 360 365

Asp Leu Glu Asn Val Arg Gln Pro Met Phe Val Tyr Val Leu Thr Met
370 375 380

Lys Glu His Gly Pro Tyr Arg Thr Asp Thr Asp Asn Val Phe Asp Leu
385 390 395 400

Asp Ala Pro Asp Leu Asn Ala Lys Thr Val Ser Ala Leu Asn Asp Tyr
405 410 415

Ile Gly Arg Ile Ala Asp Leu Asp Lys Ala Val Glu Ser Phe Asp Arg
420 425 430

Tyr Leu His Glu Arg Gly Lys Pro Phe Val Phe Gly Tyr Phe Gly Asp
435 440 445

His Gln Val Pro Phe Glu Gly Val Ser Val Arg Lys Lys Trp Asp Tyr
450 455 460

Ala Gln Pro Asp Tyr Val Thr Gln Phe Ala Val Arg Ser Asn Ile Ala
465 470 475 480

Gly Gly Phe Val Gln Arg Gln Asp Phe Leu Asp Leu Ala Phe Ala Gly
485 490 495

Gly Val Leu Met Glu Ala Ala Gly Leu Glu Ala Lys Asp Gly Phe Met
500 505 510

Arg Ala Asn Met Ala Met Arg Gly Leu Cys Gly Gly Gly Leu Glu Asp
515 520 525

Cys Pro Asn Arg Glu Leu Val Gly Asn Tyr Arg Asn Tyr Leu Tyr Asp
530 535 540

Val Leu Lys Ile Ala Arg
545 550

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<211> 1468
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<213> Neisseria gonorrhoeae

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Met Lys Thr Thr Asp Lys Arg Thr Thr Glu Thr His Arg Lys Ala Pro
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Lys Thr Gly Arg Ile Arg Phe Ser Pro Ala Tyr Leu Ala Ile Cys Leu
20 25 30

Ser Phe Gly Ile Leu Pro Gln Ala Arg Ala Gly His Thr Tyr Phe Gly
35 40 45

Ile Asn Tyr Gln Tyr Tyr Arg Asp Phe Ala Glu Asn Lys Gly Lys Phe
50 55 60

Ala Val Gly Ala Lys Asp Ile Glu Val Tyr Asn Lys Lys Gly Glu Leu
65 70 75 80

Val Gly Lys Ser Met Thr Lys Ala Pro Met Ile Asp Phe Ser Val Val
85 90 95

Ser Arg Asn Gly Val Ala Ala Leu Ala Gly Asp Gln Tyr Ile Val Ser
100 105 110

Val Ala His Asn Gly Gly Tyr Asn Asn Val Asp Phe Gly Ala Glu Gly
115 120 125

Ser Asn Pro Asp Gln His Arg Phe Ser Tyr Gln Ile Val Lys Arg Asn
130 135 140

Asn Tyr Lys Ala Gly Thr Asn Gly His Pro Tyr Gly Gly Asp Tyr His
145 150 155 160

Met Pro Arg Leu His Lys Phe Val Thr Asp Ala Glu Pro Val Glu Met
165 170 175

Thr Ser Tyr Met Asp Gly Trp Lys Tyr Ala Asp Leu Asn Lys Tyr Pro
180 185 190

Asp Arg Val Arg Ile Gly Ala Gly Arg Gln Tyr Trp Arg Ser Asp Glu
195 200 205

Asp Glu Pro Asn Asn Arg Glu Ser Ser Tyr His Ile Ala Ser Ala Tyr
210 215 220

Ser Trp Leu Val Gly Gly Asn Thr Phe Ala Gln Asn Gly Ser Gly Gly
225 230 235 240

Gly Thr Val Asn Leu Gly Ser Glu Lys Ile Lys His Ser Pro Tyr Gly
245 250 255

Phe Leu Pro Thr Gly Gly Ser Phe Gly Asp Ser Gly Ser Pro Met Phe
260 265 270

Ile Tyr Asp Ala Gln Lys Gln Lys Trp Leu Ile Asn Gly Val Leu Gln
275 280 285

Thr Gly Asn Pro Tyr Ile Gly Lys Ser Asn Gly Phe Gln Leu Val Arg
290 295 300

Lys Asp Trp Phe Tyr Asp Glu Ile Phe Ala Gly Asp Thr His Ser Val
305 310 315 320

Phe Tyr Glu Pro His Gln Asn Gly Lys Tyr Phe Phe Asn Asp Asn Asn
325 330 335

Asn Gly Ala Gly Lys Ile Asp Ala Lys His Lys His Tyr Ser Leu Pro
340 345 350

Tyr Arg Leu Lys Thr Arg Thr Val Gln Leu Phe Asn Val Ser Leu Ser
355 360 365

Glu Thr Ala Arg Glu Pro Val Tyr His Ala Ala Gly Gly Val Asn Ser
370 375 380

Tyr Arg Pro Arg Leu Asn Asn Gly Glu Asn Ile Ser Phe Ile Asp Lys
385 390 395 400

Gly Lys Gly Glu Leu Ile Leu Thr Ser Asn Ile Asn Gln Gly Ala Gly
405 410 415

Gly Leu Tyr Phe Glu Gly Asn Phe Thr Val Ser Pro Lys Asn Asn Glu
420 425 430

Thr Trp Gln Gly Ala Gly Val His Ile Ser Asp Gly Ser Thr Val Thr
435 440 445

Trp Lys Val Asn Gly Val Ala Asn Asp Arg Leu Ser Lys Ile Gly Lys
450 455 460

Gly Thr Leu Leu Val Gln Ala Lys Gly Glu Asn Gln Gly Ser Val Ser
465 470 475 480

Val Gly Asp Gly Lys Va

SEQUENCE LISTING

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<120> Immunogenic Compositions Comprising Multiple Gonococcal Antigens

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<140> 10561235

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<150> PCT/IB2004/002421

<151> 2004-06-25

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<213> Neisseria gonorrhoeae

<400> 1

Gly Ser Gly Gly Gly Gly

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<210> 2

<211> 225

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2

Met Thr Phe Phe Lys Pro Ser Thr Val Val Leu Thr Ala Ser Ala Leu

1 5 10 15

Ala Leu Ser Gly Cys Val Ala Asp Pro Val Thr Gly Gln Gln Ser Pro
20 25 30

Asn Lys Ser Ala Met Tyr Gly Leu Gly Gly Ala Ala Val Cys Gly Ile
35 40 45

Val Gly Ala Leu Thr His Ser Gly Lys Gly Ala Arg Asn Ser Ala Leu
50 55 60

Ala Cys Gly Ala Ile Gly Ala Gly Val Gly Gly Tyr Met Asp Tyr Gln
65 70 75 80

Glu Gln Arg Leu Arg Gln Asn Leu Ala Gly Thr Gln Ile Glu Ile Gln
85 90 95

Arg Gln Gly Asn Gln Ile Arg Leu Val Met Pro Glu Ser Val Thr Phe
100 105 110

Ala Thr Gly Ser Ala Ala Leu Gly Gly Ser Ala Gln Tyr Ala Leu Asn
115 120 125

Thr Ala Ala Gln Thr Leu Val Gln Tyr Pro Asp Thr Thr Leu Thr Ile
130 135 140

Asn Gly His Thr Asp Asn Thr Gly Ser Asp Ala Val Asn Asn Pro Leu
145 150 155 160

Ser Gln His Arg Ala Gln Ala Val Ala Tyr Tyr Leu Gln Thr Arg Gly
165 170 175

Val Ala Ala Ser Arg Leu Thr Val Tyr Gly Tyr Gly Ser His Met Pro
180 185 190

Val Ala Ser Asn Ala Thr Val Glu Gly Arg Ala Gln Asn Arg Arg Val
195 200 205

Glu Ile Leu Ile Asn Pro Asp Gln Arg Ala Val Asn Ala Ala Arg His
210 215 220

Met
225

<210> 3
<211> 185
<212> PRT
<213> Neisseria gonorrhoeae

<400> 3
Met Pro Ser Glu Ala Leu Gln Thr Ala Phe Arg Gly Asn Ile Arg Arg
1 5 10 15

Ser Phe Thr Met Ile Arg Leu Thr Arg Ala Phe Ala Ala Ala Leu Ile
20 25 30

Gly Leu Cys Cys Thr Thr Gly Ala His Ala Asp Thr Phe Gln Lys Ile
35 40 45

Gly Phe Ile Asn Thr Glu Arg Ile Tyr Leu Glu Ser Lys Gln Ala Arg
50 55 60

Asn Ile Gln Lys Thr Leu Asp Gly Glu Phe Ser Ala Arg Gln Asp Glu
65 70 75 80

Leu Gln Lys Leu Gln Arg Glu Gly Leu Asp Leu Glu Arg Gln Leu Ala
85 90 95

Gly Gly Lys Leu Lys Asp Ala Lys Lys Ala Gln Ala Glu Glu Lys Trp
100 105 110

Arg Gly Leu Val Glu Ala Phe Arg Lys Lys Gln Ala Gln Phe Glu Glu
115 120 125

Asp Tyr Asn Leu Arg Arg Asn Glu Glu Phe Ala Ser Leu Gln Gln Asn
130 135 140

Ala Asn Arg Val Ile Val Lys Ile Ala Lys Gln Glu Gly Tyr Asp Val
145 150 155 160

Ile Leu Gln Asp Val Ile Tyr Val Asn Thr Gln Tyr Asp Val Thr Asp
165 170 175

Ser Val Ile Lys Glu Met Asn Ala Arg
180 185

<210> 4
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<213> Neisseria gonorrhoeae

<400> 4

Met Asn Thr Ile Phe Lys Ile Ser Ala Leu Thr Leu Ser Ala Ala Leu
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Ala Leu Ser Ala Cys Gly Lys Lys Glu Ala Ala Pro Ala Ser Ala Ser
20 25 30

Glu Pro Ala Ala Ala Ser Ala Ala Gln Gly Asp Thr Ser Ser Ile Gly
35 40 45

Ser Thr Met Gln Gln Ala Ser Tyr Ala Met Gly Val Asp Ile Gly Arg
50 55 60

Ser Leu Lys Gln Met Lys Glu Gln Gly Ala Glu Ile Asp Leu Lys Val
65 70 75 80

Phe Thr Asp Ala Met Gln Ala Val Tyr Asp Gly Lys Glu Ile Lys Met
85 90 95

Thr Glu Glu Gln Ala Gln Glu Val Met Met Lys Phe Leu Gln Glu Gln
100 105 110

Gln Ala Lys Ala Val Glu Lys His Lys Ala Asp Ala Lys Ala Asn Lys
115 120 125

Glu Lys Gly Glu Ala Phe Leu Lys Glu Asn Ala Ala Lys Asp Gly Val
130 135 140

Lys Thr Thr Ala Ser Gly Leu Gln Tyr Lys Ile Thr Lys Gln Gly Glu
145 150 155 160

Gly Lys Gln Pro Thr Lys Asp Asp Ile Val Thr Val Glu Tyr Glu Gly
165 170 175

Arg Leu Ile Asp Gly Thr Val Phe Asp Ser Ser Lys Ala Asn Gly Gly
180 185 190

Pro Ala Thr Phe Pro Leu Ser Gln Val Ile Pro Gly Trp Thr Glu Gly
195 200 205

Val Arg Leu Leu Lys Glu Gly Gly Glu Ala Thr Phe Tyr Ile Pro Ser
210 215 220

Asn Leu Ala Tyr Arg Glu Gln Gly Ala Gly Glu Lys Ile Gly Pro Asn
225 230 235 240

Ala Thr Leu Val Phe Asp Val Lys Leu Val Lys Ile Gly Ala Pro Glu
245 250 255

Asn Ala Pro Ala Lys Gln Pro Asp Gln Val Asp Ile Lys Lys Val Asn
260 265 270

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20 25 30

Glu Lys Ile Gly Trp Ile Leu Val Leu Asp Lys Glu Gly Arg Leu Lys
35 40 45

Thr Val Val Pro Asn Leu Thr Ala Asp Lys Lys Pro Gln Pro Lys Leu
50 55 60

Met Ser Val Pro Arg Pro Glu Lys Arg Thr Ser Gly Ile Lys Pro Asn
65 70 75 80

Phe Leu Trp Asp Lys Thr Ala Tyr Ala Leu Gly Val Glu Ala Asn Lys
85 90 95

Asn Lys Ala Glu Ala Lys Glu Lys Pro Phe Thr Pro Ser Glu Lys Thr
100 105 110

Phe Glu Ala Phe Lys Gln Tyr His Leu Asp Leu Leu Gln Asn Ser Glu
115 120 125

Asp Glu Gly Leu Gln Ala Leu Cys Arg Phe Leu Gln Asn Trp Gln Pro
130 135 140

Ala His Phe Ala Ala Glu Asn Leu Pro Ala Glu Met Leu Asp Ser Asn
145 150 155 160

Thr Ala Phe Ser Leu Glu Lys Pro Thr Ala Leu Ile His Lys Arg Glu
165 170 175

Ala Ala Gln Thr Leu Trp Ala Gly Cys Leu Lys Ser Asp Glu Ala Leu
180 185 190

Glu Ser Leu Cys Leu Ile Ser Gly Asp Thr Ala Pro Ile Ala Arg Leu
195 200 205

His Pro Ala Ile Lys Gly Val Phe Gly Gly Gln Ser Ser Gly Gly Ser

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Ile Ile Ser Phe Asn Lys Glu Ala Phe Ser Ser Phe Gly Lys Glu Gln		
225	230	235
Gly Ala Asn Ala Pro Val Ser Glu Gln Ser Ala Phe Ala Tyr Thr Thr		
245	250	255
Ala Leu Asn Tyr Leu Leu Arg Arg Glu Asn Asn His Cys Leu Thr Ile		
260	265	270
Gly Asp Ala Ser Thr Val Phe Trp Ala Glu Ala Asp Asp Ile Val Asp		
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20	25	30
Leu Phe Val Phe Leu Ala Gly Gly Met Leu Met Leu Thr Ala Gln Trp		
35	40	45
Gln Arg Ala Leu Asn Phe Ala Ser Val Trp Phe Val Val Leu Ile Leu		
50	55	60
Phe His Arg Leu Lys Ile His Tyr Tyr Lys Gln Pro Leu Leu Ile Ser		
65	70	75
80		
Asp Phe Leu Leu Ile Ala Asp Trp Arg Asn Trp Glu Thr Leu Phe His		
85	90	95
Tyr Lys Glu Ala Val Ile Gly Met Ala Gly Leu Leu Ala Leu Ala Gly		
100	105	110
Tyr Ala Val Phe Gly Trp Ser Gly Ala Asp Ser Leu Gly Met Pro Trp		
115	120	125
Arg Trp Ala Gly Ala Val Leu Phe Ala Ala Ala Phe Val Ser Val Arg		
130	135	140
His Phe Ser Lys His Pro Gly Ala Val Lys Thr Trp Leu Asp Ser Leu		
145	150	155
160		
Pro Asp Asp Gly Arg Asp Val Phe Leu Asn Leu Pro Met Ser Cys Arg		
165	170	175
Ala Val Phe Phe Gln Val Pro Val Phe Glu Gly Asp Gly Glu Ala Phe		
180	185	190

Ala Arg Gln Met Pro Ser Glu Thr Arg Pro Tyr Gly Met Ser Asp Glu
195 200 205

Lys Pro Asp Ile Val Val Thr Leu Met Glu Ser Thr Leu Asp Pro His
210 215 220

Cys Phe Asp Phe Ala Ala Ala Lys Ile Pro Asp Leu Lys Met Phe Gly
225 230 235 240

Arg Gln Glu Asp Thr Val Phe Ser Ser Pro Leu Arg Val His Thr Phe
245 250 255

Gly Gly Ala Thr Trp Lys Ser Glu Phe Ala Phe Leu Ala Gly Val Pro
260 265 270

Ser Thr Asp Phe Gly Ala Leu Ala Ser Gly Val Phe Tyr Ser Val Val
275 280 285

Pro His Leu Gln Thr Gly Phe Val Arg Asn Leu Arg Glu His Gly Tyr
290 295 300

Phe Cys Val Ala Leu Ser Pro Phe Thr Lys Gly Asn Tyr Asn Ala Lys
305 310 315 320

Ala Ala Tyr Asp His Phe Gly Phe Asn Leu Met Phe Gln Pro Gln Asp
325 330 335

Leu Gly Tyr Pro Ala Pro Met Gly Lys Asn Leu Trp His Ile Ser Ser
340 345 350

Glu Glu Met Met Gln Tyr Ala Arg Met Ile Leu Glu Lys Arg His Pro
355 360 365

Asp Leu Glu Asn Val Arg Gln Pro Met Phe Val Tyr Val Leu Thr Met
370 375 380

Lys Glu His Gly Pro Tyr Arg Thr Asp Thr Asp Asn Val Phe Asp Leu
385 390 395 400

Asp Ala Pro Asp Leu Asn Ala Lys Thr Val Ser Ala Leu Asn Asp Tyr
405 410 415

Ile Gly Arg Ile Ala Asp Leu Asp Lys Ala Val Glu Ser Phe Asp Arg
420 425 430

Tyr Leu His Glu Arg Gly Lys Pro Phe Val Phe Gly Tyr Phe Gly Asp
435 440 445

His Gln Val Pro Phe Glu Gly Val Ser Val Arg Lys Lys Trp Asp Tyr
450 455 460

Ala Gln Pro Asp Tyr Val Thr Gln Phe Ala Val Arg Ser Asn Ile Ala
465 470 475 480

Gly Gly Phe Val Gln Arg Gln Asp Phe Leu Asp Leu Ala Phe Ala Gly
485 490 495

Gly Val Leu Met Glu Ala Ala Gly Leu Glu Ala Lys Asp Gly Phe Met
500 505 510

Arg Ala Asn Met Ala Met Arg Gly Leu Cys Gly Gly Gly Leu Glu Asp
515 520 525

Cys Pro Asn Arg Glu Leu Val Gly Asn Tyr Arg Asn Tyr Leu Tyr Asp
530 535 540

Val Leu Lys Ile Ala Arg
545 550

<210> 7
<211> 1468
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<213> Neisseria gonorrhoeae

<400> 7
Met Lys Thr Thr Asp Lys Arg Thr Thr Glu Thr His Arg Lys Ala Pro
1 5 10 15

Lys Thr Gly Arg Ile Arg Phe Ser Pro Ala Tyr Leu Ala Ile Cys Leu
20 25 30

Ser Phe Gly Ile Leu Pro Gln Ala Arg Ala Gly His Thr Tyr Phe Gly
35 40 45

Ile Asn Tyr Gln Tyr Tyr Arg Asp Phe Ala Glu Asn Lys Gly Lys Phe
50 55 60

Ala Val Gly Ala Lys Asp Ile Glu Val Tyr Asn Lys Lys Gly Glu Leu
65 70 75 80

Val Gly Lys Ser Met Thr Lys Ala Pro Met Ile Asp Phe Ser Val Val
85 90 95

Ser Arg Asn Gly Val Ala Ala Leu Ala Gly Asp Gln Tyr Ile Val Ser
100 105 110

Val Ala His Asn Gly Gly Tyr Asn Asn Val Asp Phe Gly Ala Glu Gly
115 120 125

Ser Asn Pro Asp Gln His Arg Phe Ser Tyr Gln Ile Val Lys Arg Asn
130 135 140

Asn Tyr Lys Ala Gly Thr Asn Gly His Pro Tyr Gly Gly Asp Tyr His
145 150 155 160

Met Pro Arg Leu His Lys Phe Val Thr Asp Ala Glu Pro Val Glu Met
165 170 175

Thr Ser Tyr Met Asp Gly Trp Lys Tyr Ala Asp Leu Asn Lys Tyr Pro
180 185 190

Asp Arg Val Arg Ile Gly Ala Gly Arg Gln Tyr Trp Arg Ser Asp Glu
195 200 205

Asp Glu Pro Asn Asn Arg Glu Ser Ser Tyr His Ile Ala Ser Ala Tyr
210 215 220

Ser Trp Leu Val Gly Gly Asn Thr Phe Ala Gln Asn Gly Ser Gly Gly
225 230 235 240

Gly Thr Val Asn Leu Gly Ser Glu Lys Ile Lys His Ser Pro Tyr Gly
245 250 255

Phe Leu Pro Thr Gly Gly Ser Phe Gly Asp Ser Gly Ser Pro Met Phe
260 265 270

Ile Tyr Asp Ala Gln Lys Gln Lys Trp Leu Ile Asn Gly Val Leu Gln
275 280 285

Thr Gly Asn Pro Tyr Ile Gly Lys Ser Asn Gly Phe Gln Leu Val Arg
290 295 300

Lys Asp Trp Phe Tyr Asp Glu Ile Phe Ala Gly Asp Thr His Ser Val
305 310 315 320

Phe Tyr Glu Pro His Gln Asn Gly Lys Tyr Phe Phe Asn Asp Asn Asn
325 330 335

Asn Gly Ala Gly Lys Ile Asp Ala Lys His Lys His Tyr Ser Leu Pro
340 345 350

Tyr Arg Leu Lys Thr Arg Thr Val Gln Leu Phe Asn Val Ser Leu Ser
355 360 365

Glu Thr Ala Arg Glu Pro Val Tyr His Ala Ala Gly Gly Val Asn Ser
370 375 380

Tyr Arg Pro Arg Leu Asn Asn Gly Glu Asn Ile Ser Phe Ile Asp Lys
385 390 395 400

Gly Lys Gly Glu Leu Ile Leu Thr Ser Asn Ile Asn Gln Gly Ala Gly
405 410 415

Gly Leu Tyr Phe Glu Gly Asn Phe Thr Val Ser Pro Lys Asn Asn Glu
420 425 430

Thr Trp Gln Gly Ala Gly Val His Ile Ser Asp Gly Ser Thr Val Thr
435 440 445

Trp Lys Val Asn Gly Val Ala Asn Asp Arg Leu Ser Lys Ile Gly Lys
450 455 460

Gly Thr Leu Leu Val Gln Ala Lys Gly Glu Asn Gln Gly Ser Val Ser
465 470 475 480

Val Gly Asp Gly Lys Va